WIELAND

ZENOTEC CAM 3.2 advanced

User Manual Version 1.3

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service@wieland-dental.de

1. Introduction

1.1 How to use this manual

1.1.1 Layout

The manual is laid out in two columns; the left column contains images and the right column contains text.

Note
Indicates additional information, notes and helpful hints.

1.2 Conventions

The following conventions are observed in this user manual:

Example	Meaning
<<xyz>> Bold font inside double angle brackets	Indicates elements that can be selected on the user interface.
Click	Press left mouse button once and release it immediately.
Double click	Press and release left mouse button twice in quick succession.
Right click	Press right mouse button once and release it immediately.
Drag & drop	Press left mouse button and hold it down. Move object by changing the position of the mouse and place the object at the point at which the mouse button is released.
Rotate scroll wheel	Scroll the mouse wheel up or down.

1.2.1 ZENOTEC CAM 3.2 software

The description of the software includes some functions which vary according to the milling machine installed.

1.2.2 Additional manual formats

The User Manual can be downloaded as a PDF file from:
www.wieland-dental.de

In order to read the PDF document, the Acrobat Reader application must be installed.

2. Installing the software

2.1 Hardware requirements

In order to install and use the software successfully, the following minimum hardware requirements must be fulfilled:

Processor:	Intel Core 2 Duo 2GHz
Operating system	Windows XP®
Screen resolution:	1024x768 32bit, True Color
RAM:	4 GB
Hard disk drive:	80 GB
Input device:	Mouse with scroll wheel

2.2 Software requirements

Note

In order to install the software on a PC, you must have administrator privileges.

2.2.1 Installing the hardware

Insert the software dongle you have received from Wieland Dental + Technik into a free USB port.

Do not allow WINDOWS to install the driver automatically. Cancel this process.

2.2.2 Installing the software

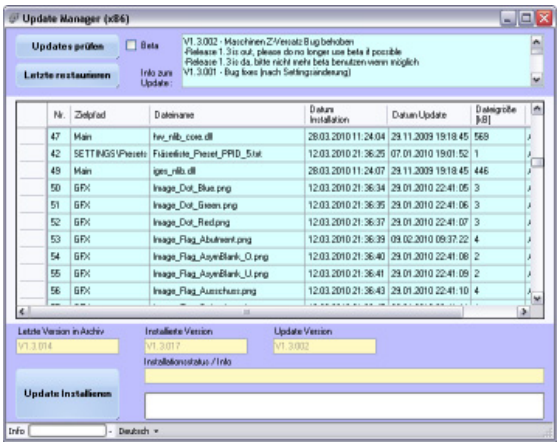
Insert the installation CD into your CD/DVD drive. If Autorun is enabled in Windows, the installation will be launched automatically; otherwise proceed as follows:

- Double click on Wieland-Cam-Setup.exe to select the installation file
- Select the installation language
- Confirm all installation steps by pressing **<< Next >>**
- The desktop now displays the following ZENOTEC CAM 3.2 advanced icons: **<<Wieland-Cam>>**, **<<STL-Grabber>>** and **<<Update Manager>>**

2.2.3 Software update

Since installation CDs do not always contain the latest version, you should launch the **<<Update Manager>>** from your desktop once before rebooting your PC.

3. Update Manager



3.1 Check for updates

In order to check if the software is up to date, click on **<<Check for updates>>**.

3.2 Installing updates

In order to install any updates found, click on **<<Install updates>>.**

The Update Manager window displays information such as current software version and current update version.

Note

Do not install any BETA versions. BETA versions are for test purposes only and may contain errors.

3.3 Restore previous version

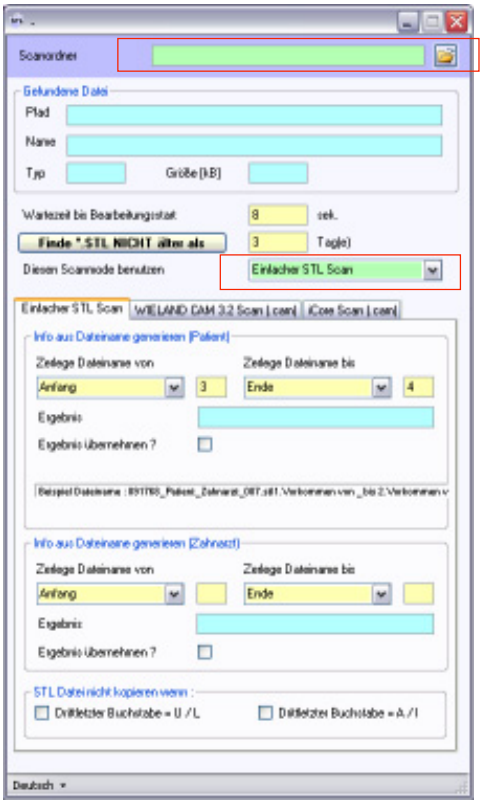
In order to restore your software to the previous version, click on **<<Restore previous version>>**.

4. STL Grabber

4.1 Description

The STL Grabber enables milling data to be automatically loaded into the CAM software. To do this, launch the STL Grabber by double clicking or alternatively allow WINDOWS Autorun to enable it. Once it is enabled, the STL Grabber appears in the WINDOWS task bar.

4.2 Settings



When the STL Grabber is enabled, right click on the STL Grabber icon in the task bar to **<<Display>>** the settings.

Enter into the field labelled Scan Folder the directory to be searched for modelled data files.

Set the file format to be searched for in **<<Use this scan mode>>**.

Note

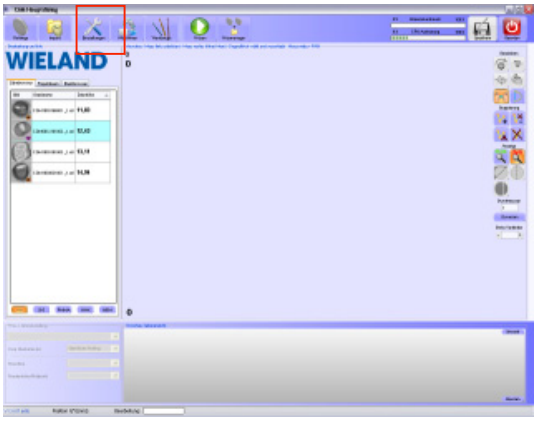
When .cam files are being read, .stl identification can not be carried out. This would produce read errors, since .cam files consist of a number different .stl files.

In the case of simple .stl scans, various settings can be entered to define the file

5. CAM software / settings

When the software is first launched by double clicking on the Wieland-Cam icon, a log file is created. Close the software and relaunch the CAM application.

5.1 Settings

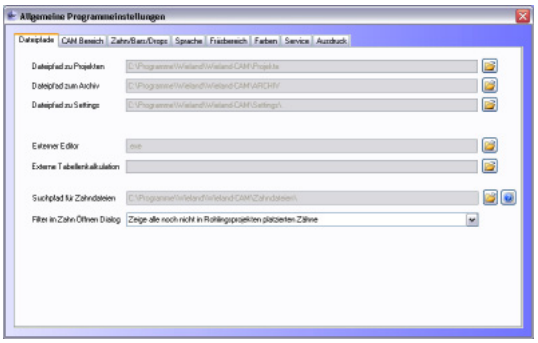


The settings menu offers of a number of tabs:

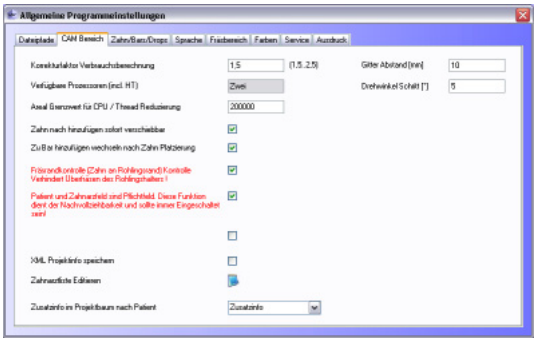
- **A** Paths
- **B** CAM Area
- **C** Tooth/Bars/Drops
- **D** Language
- **E** Milling Area
- **F** Shades
- **G** Service
- **H** Printout

All setting tabs contain a number settings which should only be changed by experienced users.

5.1.1 Paths



Program settings are entered in the Paths tab Paths that can be defined include text editor path and spreadsheet path.



5.1.2 CAM Area

A number of program parameters can be entered in the CAM Area tab:

- Blank use correction factor

The blank use displayed in the main window can be corrected.

- Available processors

No settings possible

- CPU threshold

The higher this value is, the less processing power is available for other applications.

- Tooth can be moved immediately after being added

The object can immediately be moved within the blank by drag & drop.

- Change to Add Bar

Bars are placed immediately the object has been positioned in the blank.

- Check milling limit

The object to be milled can not be positioned above the blank holder.

- Patient and dentist fields are mandatory fields.

When adding raw .stl files, the names of patient and dentist must be entered.

- Save XML project
- Edit dentist list

A list of dentist names can be edited.

- Additional information in project tree

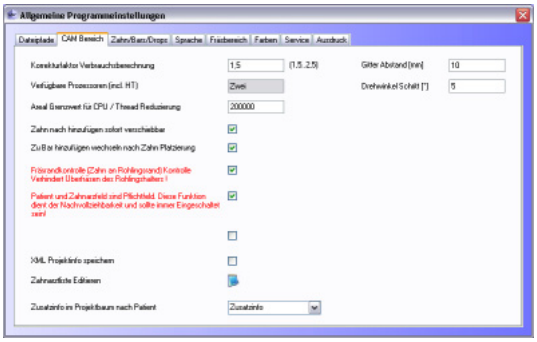
Displays selected information in the project tree of the blank.

- Grid size (mm)

Set grid view in the blank

- Increment for angle of rotation

Degree of rotation obtained by turning the scroll wheel



5.1.3 Tooth/Bars/Drops

In this area, additional setup settings can be defined for the nesting process.

- Standard sinter shrinkage

  Calculates the object height in the tooth browser.

- Lower bar clearance

  Distance between the bars and the cervical area

- Bar diameter

  Set default for bar diameter.

- Drop diameter

  Set default for drop diameter.

- Set top edge of drop to

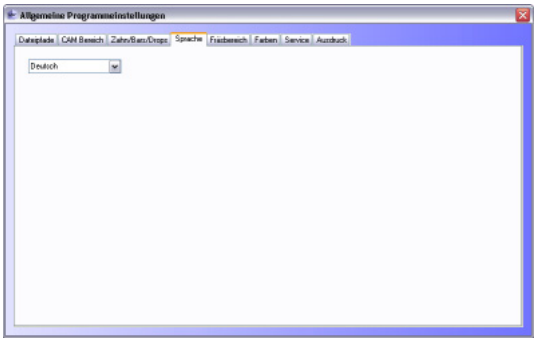
  Set the limit of drops.

- Display milled teeth

  Define how previously milled objects are to be displayed in the blank.

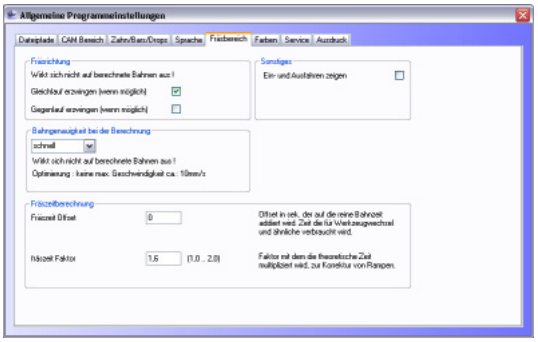
- Enable milling without bars

  When disabled, an alert is displayed when nesting, provided no bars are set.



5.1.4 Language

Set language



5.1.5 Milling area

Note

The settings for **<<Milling direction>>** and **<<Milling path accuracy>>** are machine specific and must not be changed.

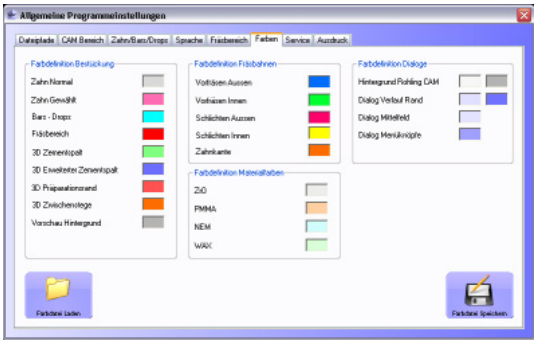
<<Milling time calculation>>

- Milling time offset

  Enter tool change time in seconds

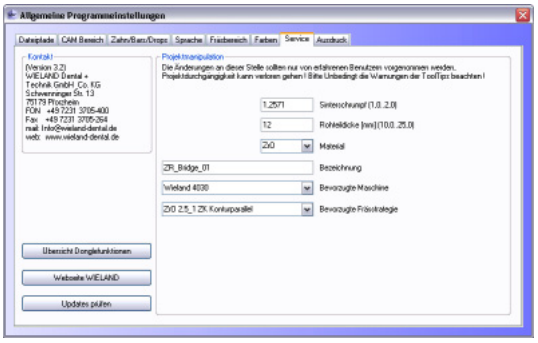
- Milling time factor

  Replace the milling time calculated by the Milling Manager with the actual milling time.



5.1.6 Colours

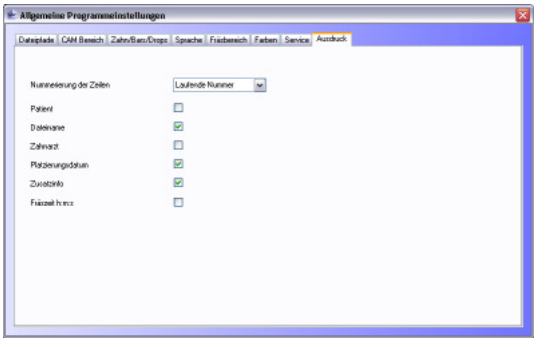
Here a number of colour settings can be changed.



5.1.7 Service

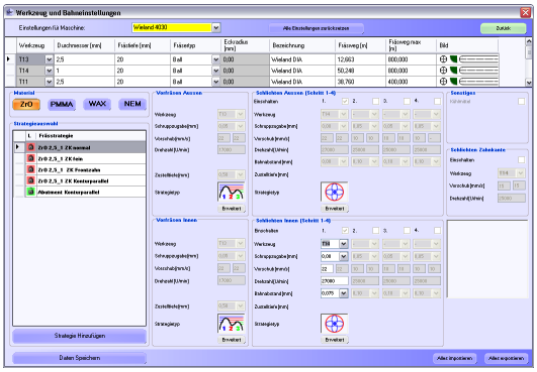
Here the manufacturer's service information and the dongle licence can be viewed.

The **<<Project manipulation>>** setting allows the current blank to be changed.



5.1.8 Printout

This setting defines which parameters of the position printout will be printed after milling.

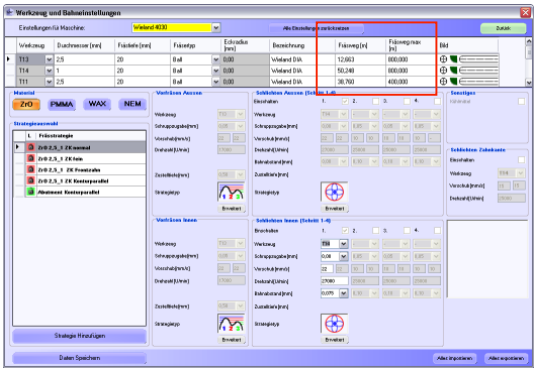


5.2 Tools

The tools and milling strategy settings should only be changed by experienced users.

Here you can copy and paste an existing milling strategy with a red padlock icon by right clicking on it.

Alternatively, you can select **<<Add milling strategy>>**.



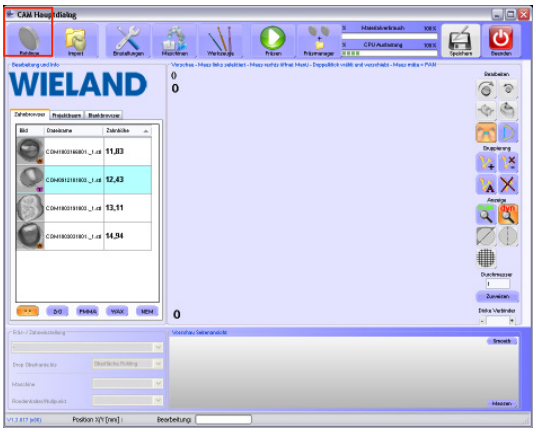
5.2.1 Tool change

The maximum possible tool travel distance can be set in the tool positions. If the actual distance reaches the maximum, the software displays an alert.

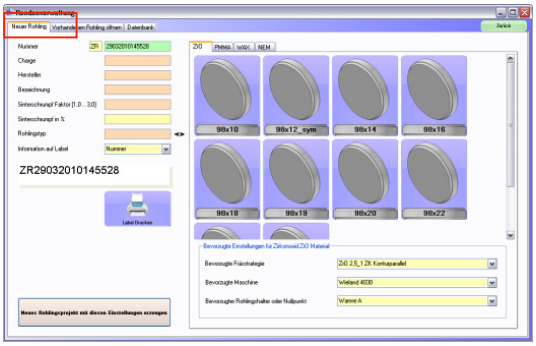
The tool must be changed and the current distance must be set to zero by double clicking on the field.

6. Workflow

6.1 Create blanks



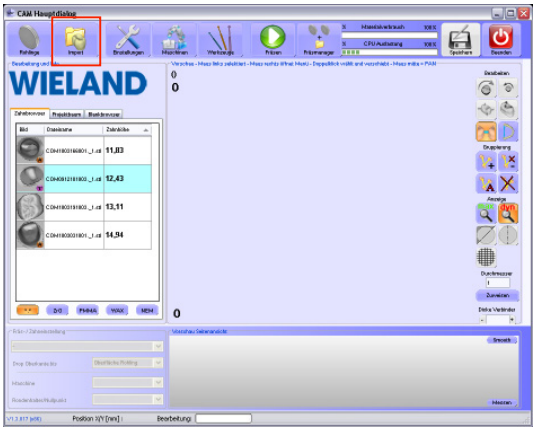
Launch the Blank Manager and click on the Blank icon.



Open the tab **<<New blank>>** and enter the required data.
All red fields must be filled in.
Click on one of the blanks displayed on the right to enter the blank thickness.
The preferred milling strategy and tank side can now be selected. These are loaded by default when the blank is loaded, but can be changed at any time.

When all entries have been made, confirm by pressing **<<Create new blank project with these settings>>.**
The blank is now available for further processing.

6.2 Import dental objects



Press the **<<Import>>** button to import objects.

Alternatively, you can move items into the tooth browser by drag & drop.

Note

A .cam file is always preferable. These files contain all necessary information, such as patient data, approach angle, type of work ….

Plese note that .cam objects consist of several .stl. files and are not to be used on their own.

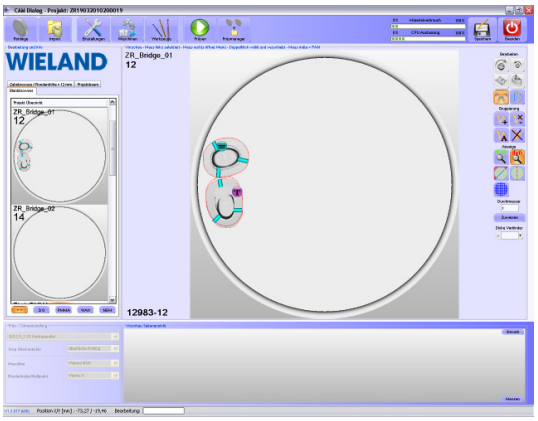
The imported teeth are displayed in the tooth browser window. A code letter may be added as follows:

- A = Abutment
- T = Telescopic crown

These settings indicate a separate approach angle when milling and are absolutely essential.

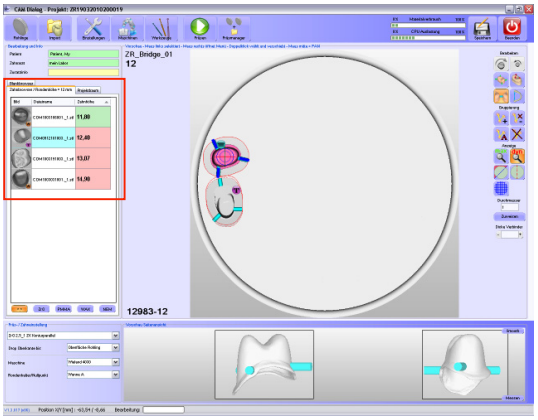
When importing raw .stl files, the approach angle can be set by right clicking on the object in the tooth browser and selecting **<<Approach angle>>**.
See 7.2

6.3 Load blank



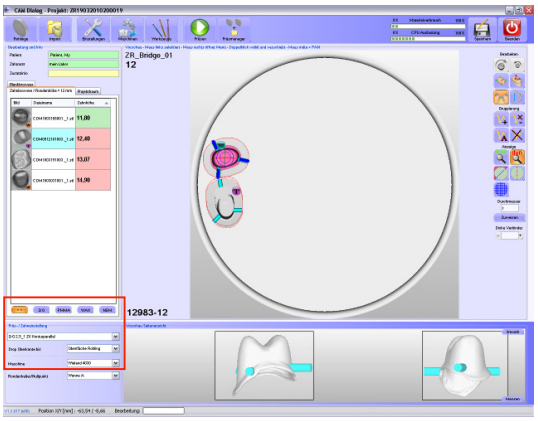
Click on the blank to load it into the main window.

6.4 Positioning the dental objects in the blank

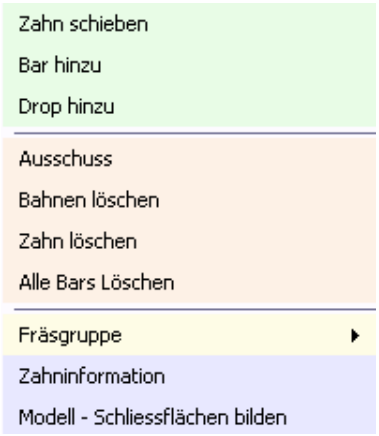


To load the dental objects into the blank, double click on the objects or move them into the blank by drag & drop then right click to fix their final position. The objects can be rotated with the scroll wheel.

Then the mouse can be used to set the required bars along the cervical area of the tooth. The height of the bars can be changed by turning the scroll wheel.



A separate milling strategy can be defined for each object selected.



Right click on the object to open a context menu listing the various functions:

- Move tooth
  The tooth can be repositioned in the blank.
- Add bar
  Bars can be added.
- Add drops
  Drops can be set on the surface of the objects.
- Reject
  The tooth is declared faulty. The object is returned to the tooth browser, but the space in the blank remains occupied.
- Delete paths
  The calculated milling paths are deleted and can be recalculated.
- Delete tooth
  The object is deleted from the blank and returned to the tooth browser.
- Delete all bars
  All bars of the selected object are deleted.
- Milling group
  A milling group can be defined. All objects in a group are combined into a single milling job.
- Tooth information
  Information field
- Model – create closing surfaces (optional)

6.4.1 Menue bar for positioning dental objects in the blank

Editing

- Rotate highlighted object to the right
- Rotate highlighted object to the left
- Set bars at the highlighted object
- Set drops at the highlighted object
- Connect bars
- Free form
- Add to milling group
  Click on the object
- Delete from milling group
  Click on the object
- Combine all unmilled objects to form a milling group
- Delete a milling group.

Display

- Enlarge blank view
- Resize blank to display
- Show/reveal enabled milling area
- Show axis
- Show grid

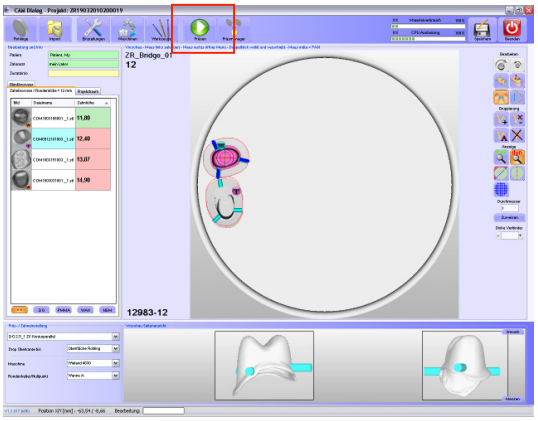
Change diameter of bars/drops

Enter value
Enable **<<Allocate>>**
Highlight bar at red limits
Highlight drops on surface

Thick connectors

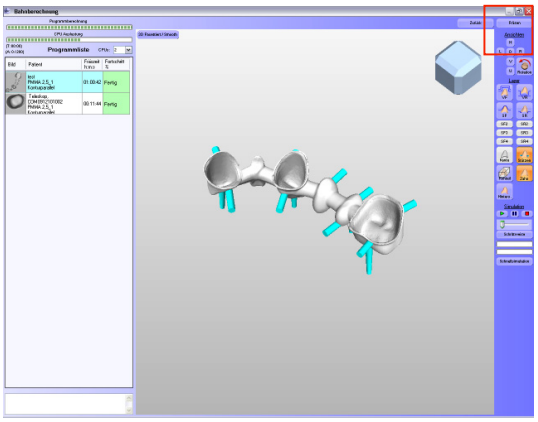
Change thickness of free form

6.5 Calculate milling paths



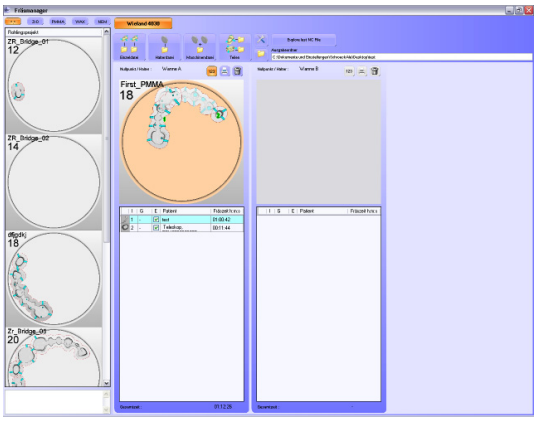
Left click on the **<<Mill>>** icon to calculate the milling paths.

The milling patch calculation window opens automatically.



When the milling paths have been calculated (this is indicated by the green progress bar), launch the Milling Manager by clicking on **<<Mill>>**.

6.6 Milling Manager

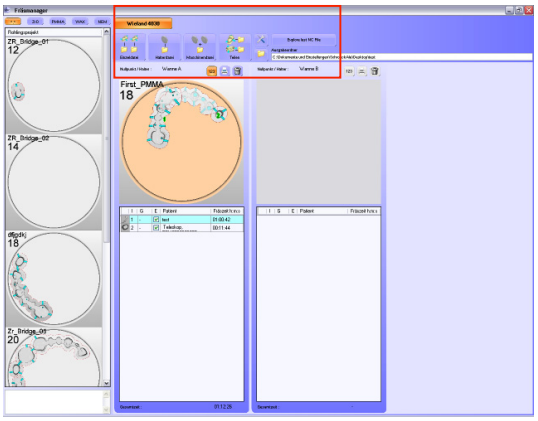


The Milling Manager can be launched instead of the main menu.

The blanks can be placed in the blank holders by drag & drop.

Single jobs can be enabled or disabled by clicking beneath the blank in the blank holder.

6.7 Create milling files



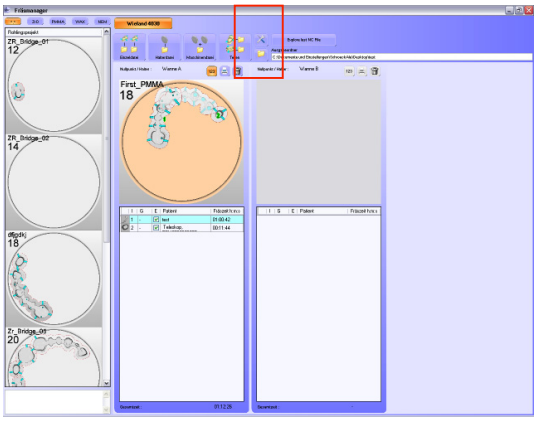
The milling files are created by clicking on the icons

- Single file
  Each job is created separately (creates several files)
- Holder file
  All jobs in a blank holder are combined into a single file.
- Machine file
  The two blank holders are combined into a single file
- Dividing milling file into separate roughing and smoothing areas.

Note

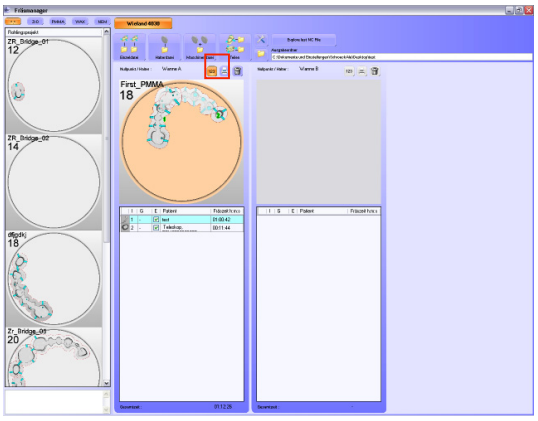
Milling files should only be divided by experienced users and should only be enabled in an emergency.

6.7.1 Output file settings

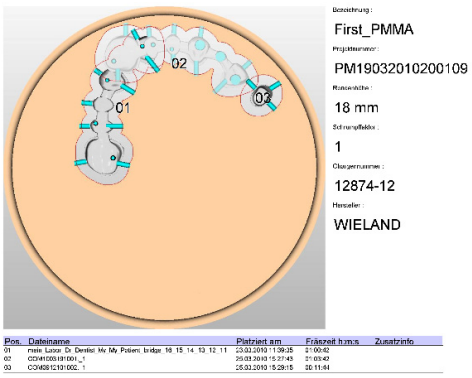


The output directory and the output name of the milling file can be set in advance.

6.7.2 Position printout

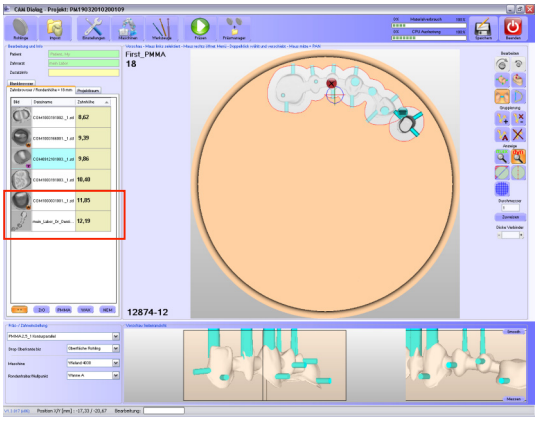


Click on the printer icon to launch a position printout.

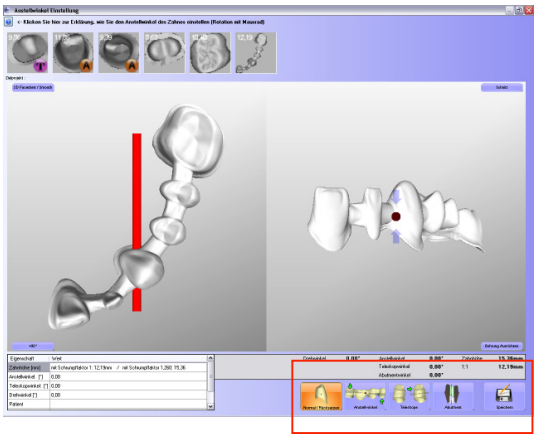


7. Advanced

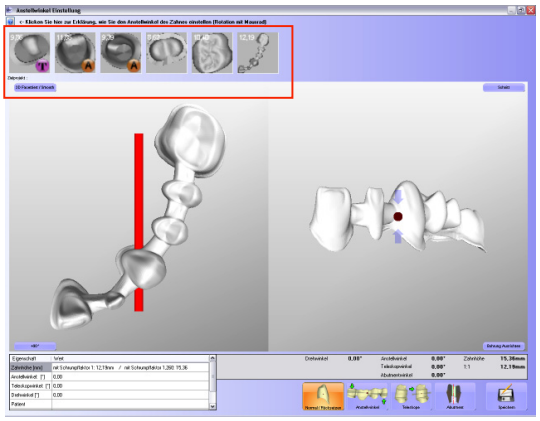
7.1 Height optimisation



Right click on the project to be optimised and select **<<Approach angle>>.**



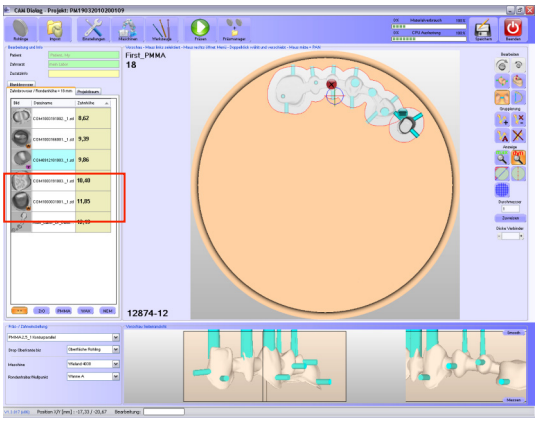
Use the scroll wheel to rotate the object in the left pane around its axis until the height difference in the right-hand pane is at its greatest. Then click on **<<Approach angle>>** and then on **<<Save>>.**



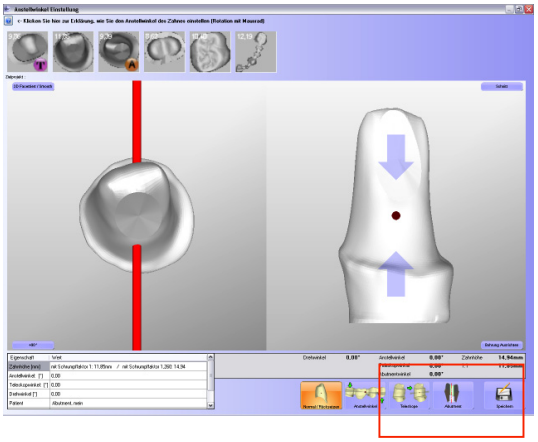
Click on the objects displayed above to load them into the optimisation window.

7.2 Define insertion direction for telescopic crowns and abutments

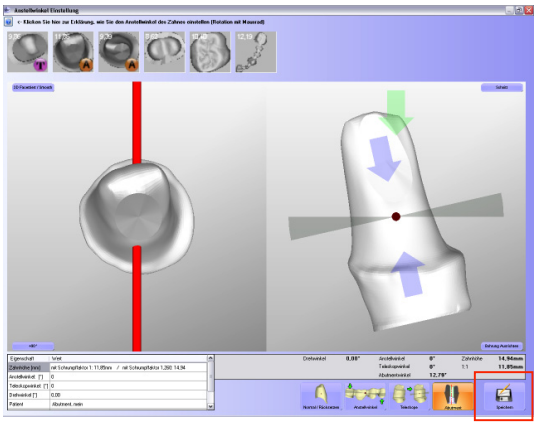
Unlike .cam files, raw .stl files can not specify separate insertion directions for telescopic crowns and abutments. This must be carried out manually in the optimisation window.



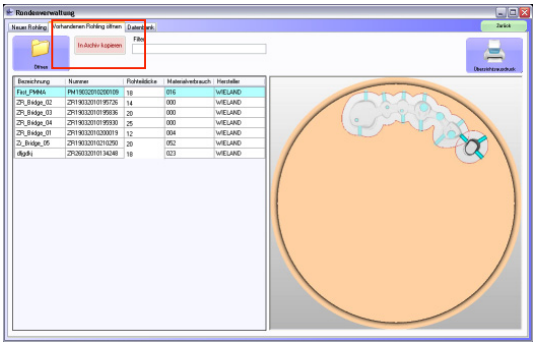
Right click on the project for which settings are to be entered and select **<<Approach angle>>.**



Select the indication: **<<Abutment>>** or **<<Telescopic crown>>**.



Use the scroll wheel to rotate the object in the left-hand pane about its axis. Move the grey axis line in the right-hand pane to set the insertion direction. The separate insertion directions are indicated by green and blue arrows. After setting the axis, click on **<<Save>>**.
The code letter **A** for abutment or **T** for telescopic crown is shown in the tooth browser preview window:



7.3 Archive blanks

By selecting **<<Blanks>>, <<Open existing blank>>** blanks can be archived and are then no longer present in the blank browser.
The blanks can be retrieved manually from the archive.

7.4 Milling groups

There are various ways of defining milling sequences. One is to create a milling group. In milling groups, instead of milling each job separately with every tool (as in the following example):

- Roughing tooth 1 inner
- Roughing tooth 1 outer
- Smoothing tooth 1 inner
- Smoothing tooth1 outer
- Roughing tooth 2 inner
- Roughing tooth 2 outer

…
the milling sequence is carried out in a time-saving manner:

- Roughing tooth 1 inner
- Roughing tooth 2 inner
- Roughing tooth 1 outer
- Roughing tooth 2 outer
- Smoothing tooth 1 inner
- Smoothing tooth 2 inner
- Roughing tooth 1 outer
- Roughing tooth 2 outer

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